

A revision of the genus *Lamarchea* Gaudichaud (Myrtaceae: Leptospermoideae)

By A. S. George

Abstract

The Australian genus *Lamarchea* Gaud., containing two species and one variety, is described and discussed. One new species is described, *L. sulcata* sp. nov. from the west-central Australian deserts, and one new variety, *L. hakeifolia* Gaud. var. *brevifolia* var. nov. from near Shark Bay, Western Australia.

Introduction

A revision of this small genus, previously thought to be monotypic, was prompted by the recognition of a new species from the inland deserts. Since the genus was described in 1829–30 from specimens collected at Shark Bay in 1818, it has received little attention, being simply enumerated or briefly described in such works as Bentham, *Flora Australiensis* (1866) and Lemée, *Dictionnaire descriptif et synonymique des genres de plantes phanérogames* (1931).

Lamarchea

Lamarchea Gaudichaud-Beaupré in Freycinet, *Voy. Uran. et Phys., Bot.* 483, tab. 110 (text March 1830, tab. Sept. 1829). Named after M. Lamarche, "capitaine de vaisseau, ex-lieutenant en pied de l'Uranic, témoignage d'attachement". Endlicher, *Gen. Pl.* 2:1237 (1836); Bentham & Hooker, *Gen. Pl.* 1:704 (1865); Bentham, *Fl. Austral.* 3:123 (1866); Bentham, *Notes on Myrtaceae*, *J. Linn. Soc., Bot.* 10 (1867); Lemée, *Dict.* 3:930 (1931). *Lamarckea* Reichb. *Consp.* 175 (1828).

Shrubs with the bark on older stems in papery layers. Young shoots and flowers with an indumentum of simple hairs. Leaves scattered, flat or terete, coriaceous. Flowers solitary, scattered, on stems of previous season or older stems, the buds covered by imbricate deciduous scales. Hypanthium campanulate with 5 imbricate calyx-lobes. Petals free, longer than the calyx-lobes. Stamens united in a slightly down-curved tube which is divided into 5 lobes more deeply so on the lower side, the two uppermost lobes the longest, the lowermost one the shortest, each with about 10–15 marginal hirsute filaments; anthers versatile. Style filiform, inserted in a depression on the convex summit of the ovary; stigma small, capitate. Ovary sunken in calyx-tube, 3-celled, with numerous ovules ascending from axile peltate placentae. Fruit woody, persistent, obovoid, the calyx-lobes, petals and staminal tube deciduous after flowering. Seeds \pm oblong-cuneate, angular, black or brown, many infertile.

Type Species: Lamarchea hakeifolia Gaud.

Distribution: Australia: Western Australia and Northern Territory: central west coast; Victoria, Gibson and southern Great Sandy Deserts (Figure 1).

Bentham (1866) described the ovules as "descending from a peltate placenta", but in fact the placentae are basal. Although closely allied to the large genus *Melaleuca*, *Lamarchea* has a distinctive appearance due to the solitary flowers with monadelphous stamens. The staminal tube is slightly curved with unequal lobes, giving a somewhat zygomorphic flower, while the tube and filaments are hirsute. The flowers have the general aspect of some species of *Calothamnus*, which has basifixed anthers. When flowering is

over, the petals fall first, followed shortly by the staminal tube and later the calyx-lobes.

The leaves of *Lamarchea sulcata* sp. nov. appear to be unique in the Myrtaceae in being sulcate. Terete leaves are common, e.g. in *Melaleuca* and *Calothamnus*, and they are sometimes singly-channelled on one side, but no other species with sulcate leaves has been recorded.



Figure 1—Distribution of *Lamarchea* species. ○—*L. hakeifolia* Gaud. var. *hakeifolia* (the localities are close together and cannot be shown individually at this scale). ●—*L. hakeifolia* var. *brevifolia* var. nov. +—*L. sulcata* sp. nov.

Until recently the genus was considered monotypic, although the former Government Botanist of Western Australia, the late C. A. Gardner, recognised the short-leaved variant of *L. hakeifolia* as a distinct taxon but did not publish it. These two taxa occur within 50 miles of the coast between the Murchison River and Shark Bay, so the occurrence of another species in the inland deserts is of interest phytogeographically. A similar situation but in a reverse direction is in the genus *Philothea* (Rutaceae): the recently-described *P. tubiflora* A. S. George occurs on the south-western edge of the Great Victoria Desert, while the other few species are found near the coast in Queensland and New South Wales. A number of other genera are distributed chiefly in wetter parts of temperate or tropical Australia with a few outlying desert species, e.g. *Lomandra* and *Thysanotus* (Liliaceae), *Xanthorrhoea* (Xanthorrhoeaceae), *Kennedia* (Papilionaceae), *Hibbertia* (Dilleniaceae), *Baeckea* and *Calytrix* (Myrtaceae), *Microcorys* (Lamiaceae) and *Stylidium* and *Levenhookia* (Stylidiaceae).

Key to Species

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| 1. Leaves flat, 3 (5)—nerved | |
| 2. Leaves mostly 3–5 cm long | 1a. <i>L. hakeifolia</i> var. <i>hakeifolia</i> |
| 2. Leaves mostly 1–2 cm long | 1b. <i>L. hakeifolia</i> var. <i>brevifolia</i> |
| 1. Leaves terete, sulcate | 2. <i>L. sulcata</i> |

1. *Lamarchea hakeifolia* Gaud. in Freycinet, Voy. Uran. et Phys., Bot. 483, tab. 110 (text March 1830, tab. Sept. 1829). Gaudichaud's spelling of *hakeae-folia* has been altered to *hakeifolia* in accordance with Art. 73 Recommendation 73 G (c) of the International Code.

Type: in Novae Hollandiae ora occidentali: baie des Chiens-Marins (= Shark Bay), *Gaudichaud*. Iso:FI.

1a. var *hakeifolia* (Figure 2)

A shrub to 5 m, the older stems with bark decorticating in papery layers. *Young shoots* densely appressed-sericeous, becoming glabrous, with sub-basal scale-leaves which are narrow-elliptic, obtuse, up to 7 mm long, pubescent outside, several-nerved in centre, margins scarious. *Leaves* oblong to narrow-lanceolate, sometimes broader in upper half, abruptly narrowed to an acute apex, shortly (1–2 mm) petiolate, flat, (2-) 3–5 (-6.5) cm long, 4–8 mm wide, with 3 main nerves, more prominent below, and a marginal or sub-marginal nerve. *Flowers* usually on the older stems from which the leaves have fallen, at first orange- or yellow-green, turning dull red. *Buds* covered with deciduous ovate obtuse scales which are \pm 2 mm long and pubescent outside. *Pedicel* 1–2 mm long, pubescent. *Hypanthium* 3.5–4.5 mm long including upper free part, hirsute; calyx-lobes elliptic-ovate, 4–6 mm long, shortly pubescent with spreading hairs on both sides, thick but with thin, fimbriate margins. *Petals* and staminal tube on a slightly raised narrow disc. *Petals* oblong-obovate, obtuse, 11–17 mm long, appressed-pubescent outside in upper half, otherwise glabrous, thin, the margins almost scarious, ciliate. *Stamens* 30–43 mm long, the tube deeply divided, base glabrous, upper part and filaments hirsute except at apices; anthers linear, 1–1.5 mm long. *Style* 35–50 mm long, slender, glabrous, stigma \pm 0.75 mm diam. Summit of ovary densely pubescent. *Fruit* sessile, depressed-obovoid, 9–12 mm long, 10–12 mm wide, smooth or the base slightly corky, orifice 3–4 mm diam., truncate or very shortly 5-lobed. *Seed* \pm oblong—narrow—cuneate, variously angular, 2–3 mm long, shining.

Distribution: Western Australia: central west coast, just south of Shark Bay.

Peron Peninsula, Shark Bay, 26 Aug. 1931, *C. A. Gardner* 2547; Shark Bay road, 5 miles N. of Tamala turnoff, 26 Aug. 1969, *A. S. George* 9559; Shark Bay Road, Oct. 1966, *W. Rogerson* 295; Nilemah Station, Hamelin Pool, 28 Aug. 1931, *C. A. Gardner* and *W. E. Blackall* 538; 15 miles NE of Tamala Station, 13 Oct. 1960, *S. Davies* (all at PERTH). (Figure 1).

This variety grows in red sand in tall scrub. The main flowering period is August to October, and new growth begins at this time.

The isotype at FI is in leaf only, with a single detached fruit. Gaudichaud's illustration shows flowers and buds among the leaves, but it is possible that this was a "reconstructed" specimen. The flowers are easily detached in drying and in this variety they are usually on the old stems only. The illustration also shows the lobes of the staminal tube of equal length with 7–11 filaments each, whereas the upper two are the longest, the lowest one the shortest, with the other two intermediate, and all have about 10–15 filaments.

1b. var. *brevifolia* A. S. George, var. nov. (Figure 3)

A varietate typica foliis 1–2 cm longis, 3–5 mm latis, floribus plerumque folia ramulorum juniorum interpositis, calycis lobis 3.5–4.5 mm longis, petalis 10–13 mm longis, staminibus 25–35 mm longis, stylo 25–35 mm longo, fructibus 8–10 mm longis 9–10 mm latis, differt.



Figure 2—*Lararchea hakeifolia* Gaud. var. *hakeifolia*. Peron Peninsula. Gardner 2547.

Type: Near 413 mile peg, North West Coastal Highway (\pm 100 miles N of Geraldton), Western Australia, 2 Jan., 1972, *A. S. George* 11229. Holo: PERTH, iso : PERTH, AD, BRI, CANB, K, MEL, NSW, RSA.

Differs from the typical variety in having leaves 1-2 cm long, 3-5 mm wide. *Flowers* generally among the leaves of the younger branchlets. *Calyx* lobes 3.5-4.5 mm long. *Petals* 10-13 mm long. *Stamens* 25-25 mm long. *Style* 25-35 mm long. *Fruit* 8-10 mm long, 9-10 mm wide.

Distribution: Western Australia, central west coast between Murchison River and Shark Bay, up to 50 miles inland.

32 miles N. of Murchison River, NW Coastal Highway, 18 Feb. 1962, *A. S. George* 3238 (in fruit); No. 2 Tank, Shark bay (road), 17 Sept. 1941, *C. A. Gardner* 6906 (in fruit);

411 mile peg, NW Coastal Highway, 3 March 1966, *E. M. Scrymgeour* 344 (in fruit); 410 mile peg, NW Coastal Highway, 19 Dec. 1962, *F. Lullfitz* 1962 (a) (in flower); 35 km NE of Kalbarri, Murchison River, 18 May 1968, *J. Bannister* (in fruit) (all at PERTH). (Figure 1).

This taxon differs from the var. *hakeifolia* mainly in the shorter leaves, but the flowers and fruit are also slightly smaller. The indumentum on the young shoots tends to be more dense and spreading, and persists for a longer time, sometimes up to a year.

It grows in sandy loam in tall scrub, but occurs to the south of the area where var. *hakeifolia* is found and farther inland. It flowers from November to January, somewhat later than the typical variety.

One collection at PERTH appears intermediate between the varieties—7 miles S. of Wannoo, N.W. Coastal Highway, 16 Sept. 1968, *M. E. Phillips*



Figure 3—*Lamarchea hakeifolia* Gaud. var. *brevifolia* var. nov. Holotype—George 11229

(duplicate of CBG 025843). It has leaves 2-3 cm long and fruit 8-10 mm long and 9-10 mm wide. Further collecting in the country between the known areas of distribution of the two varieties may reveal further intermediates from one to the other.

2. *Lamarchea sulcata* A. S. George sp. nov. (Figure 4).

A *L. hakeifolia* Gaud. habitu breviori (ad 2 m alt.) patenti, foliis teretibus 5-sulcatis differt. *Folia* (5-) 15-30 (-30) mm longa, pungentes. *Hypanthium* \pm 4mm longum, calycis lobi 4-5 mm longi. *Petala* 10-13 mm longa. *Stamina* 25-40 mm longa. *Stylus* 30-40 mm longus. *Fructus* 8-10 mm longus, 7-8 mm latus.

Type: 12 miles E of Todd Range, Gunbarrel Highway, Gibson Desert, Western Australia (lat. 25°43'S, long. 126°21'E), 2 Oct. 1966, A. S. George 8211. In gravelly loam with scattered *Acacia*, *Eremophila* and *Triodia*. *Holo*: PERTH, *iso*: PERTH, AD, BRI, CANB, K, MEL, NSW.



Figure 4—*Lamarchea sulcata* sp. nov. Holotype—George 8211.

A spreading *shrub* to 2 m tall with many stems. Bark on old stems in papery layers. *Young shoots* closely hirsute, becoming glabrous except for a few hairs in the sulcae of the leaves. *Leaves* terete, sulcate with 5 grooves, pungent, (5-) 15-30 (-35) mm long, slightly narrowed into a short petiole. *Flowers* scattered on older stems from which leaves have fallen, green and red. *Buds* covered by imbricate scales which are narrow to broad-ovate, hirsute outside, glabrous inside, deciduous. *Hypanthium* campanulate, densely hirsute, \pm 4 mm long, calyx lobes spreading ovate, obtuse, 4-5 mm long, thick with somewhat scarios margins, glabrous within. *Petals* broadly oblong, concave, obtuse, 10-13 mm long, thin with scarios margins, hirsute outside, glabrous within. *Stamens* 25-40 mm long, the tube glabrous outside at the base, densely hirsute above including the filaments, inside hirsute throughout: lobes with \pm 15 marginal filaments; anthers \pm 1.5 mm long. *Style* 30-40 mm long, glabrous; stigma small. Summit of ovary densely hirsute. *Fruit* almost sessile, obovoid, 8-10 mm long, 7-8 mm diam., smooth, dark brown, orifice \pm 5 mm diam., slightly undulate. Fertile *seeds* few, \pm oblong, angular, the outer ones curved on outer surface, 2 mm long, black; sterile seeds narrow, dark brown.

Distribution: Western Australia and Northern Territory: Victoria, Gibson and southern Great Sandy Deserts.

W.A.—9 miles N of No. 12 Well, Canning Stock Route, 5 Sept. 1942, *H. M. Wilson* 11 (PERTH); 5 miles N of Camel Well, NE of Wiluna, 8 Sept. 1958, *N. H. Speck* 1399 (CANB, PERTH); 3 miles W. of Yamarna H.S., E. of Laverton, 2 July 1963, *A. S. George* 4629 (PERTH).

N.T.—South of the Davenport Hills (26 miles E of State border on road from Giles, W.A. to Sandy Blight Junction), 25 July, 1967 *A. S. George* 8920 (PERTH, NT, RSA). (Figure 1.)

This species is readily distinguished from *L. hakeifolia* by its lower, spreading habit and the remarkable sulcate leaves. It has been collected in several habitats, viz. on a sandstone ridge (Wilson 11), on the crest of a mudstone escarpment (Speck 1399), on a gentle gravelly slope (George 8211) and on the sides of sand dunes (George 4629 and 8920). It forms small populations in widely separated localities. Flowering is apparently dependent on rainfall, as with most desert plants: Wilson 11, collected in September is in flower and bud, but Speck 1399, collected in the same month of a different year, is in bud only; George 8211, (October) is in full flower, as also is George 8920 (July); however, 4629 (July) has fruit only, with no sign of buds.

The Northern Territory record is the first for the genus outside Western Australia and is an interesting addition to the central Australian flora [G. Chippendale, Check List of Northern Territory Plants, in Proc. Linn. Soc. N.S. Wales 96, 4: 207-267 (1972)].